CLAIMS:

1. A method of manufacturing a semiconductor device comprising the step of depositing an epitaxial layer based on Group IV elements on a silicon substrate by Chemical Vapor Deposition, and including employing nitrogen or a noble gas as a carrier gas.

2. A method as claimed in claim 1, which is employed to form an epitaxial layer based on silicon, germanium and/or carbon.

3. A method as claimed in claim 2, wherein the epitaxial layer comprises $Si_{1-y}C_y$.

4. A method as claimed in claim 2, wherein the epitaxial layer comprises a SiGe epitaxial layer.

5. A method as claimed in claim 2, wherein the epitaxial layer comprises $Si_{1-x-y}Ge_xC_y$.

6. A method as claimed in claim 2, wherein the epitaxial layer comprises a silicon epitaxial layer.

7. A method as claimed in any one of the preceding claims, which is carried out at a low temperature.

8. A method as claimed in claim 7, which is carried out at a temperature of less than about 600°C.

9. Chemical Vapor Deposition apparatus (10) comprising a chamber (12) having a gas input port (14) and a gas output port (16), and means (18) for mounting a silicon substrate (20) within the chamber (12), said apparatus (10) further including a gas source (24) connected to the input port (14) and arranged to provide nitrogen or a noble gas as a carrier gas.

10. Apparatus as claimed in claim 9, which is arranged to deposit an epitaxial layer in accordance with the method as claimed in any one of claims 2-8.